



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

tion 13 months after pollination. The numerous archegonia are scattered over the broader micropylar portion of the gametophyte. The pollen grains germinate in the axils of the cone scales, before there is any differentiation of a micropyle. The pollen tubes are long and branching and penetrate the cone axis, and also the phloem and even the xylem of the scale traces. The two sperms are somewhat unequal cells with delicate walls, and their nuclei are as large as the egg nucleus. The proembryo is three-tiered, the uppermost tier forming the suspensor, the middle tier the embryo, and the lowest tier a protective cap. The cone scale is said to be structurally double, representing a combination of the bract and scale in Abietineae. It is concluded that the araucarians represent a highly specialized branch of the Coniferales, and that *Araucaria* is probably more ancient than *Agathis*.—J. M. C.

**Anatomy of Botrychioxylon.**—SCOTT<sup>28</sup> has described in detail the anatomy of *Botrychioxylon*, one of the paleozoic Zygopterideae. As in all the members of this family, a true pith is absent, the primary wood of the stele being intermixed with much parenchyma. Around the whole primary cylinder, as well as around the diarch leaf-trace, is a wide zone of secondary wood, a condition rare or absent in most of the family. The petiolar bundle resembles somewhat that of *Dineuron* or *Metaclepsydropsis*. Because of the unusual development of secondary wood, *Botrychioxylon* is considered by its author to approach the living *Botrychium* more closely than has any previously described form, and to present evidence for the affinity of the Zygopterideae and Ophioglossaceae. This conclusion is in harmony with that general theory, now the subject of much dispute, which derives the true pith of modern ferns from tissue which was primitively stelar.—E. W. SINNOTT.

**Fertilization in Gagea.**—In *Gagea lutea*<sup>29</sup> the usual double fertilization is the rule, but occasionally both male nuclei fuse with the egg. Another apparently unusual feature is the inclusion of cytoplasm between the fusing nuclei both during the fertilization of the egg and during the fusion of the polar nuclei. The included cytoplasm soon disorganizes. This is the second record of such a cytoplasmic inclusion, the first having been made by BROWN<sup>30</sup> in his study of *Peperomia*. The dispermic fertilization and a study of the literature of chromosome numbers leads NĚMEC into speculations upon the origin of mutation.—CHARLES J. CHAMBERLAIN.

<sup>28</sup> SCOTT, D. H., On *Botrychioxylon paradoxum*, sp. nov., a paleozoic fern with secondary wood. Trans. Linn. Soc. Bot. 7:373-389. pls. 37-41. 1912.

<sup>29</sup> NĚMEC, B., Über die Befruchtung bei *Gagea*. Bull. Internat. Acad. Sci. Bohême 1912:1-17. figs. 19.

<sup>30</sup> BROWN, W. H., The exchange of material between nucleus and cytoplasm in *Peperomia sintenisii*. Bot. Gaz. 49:189-194. pl. 13. 1910.